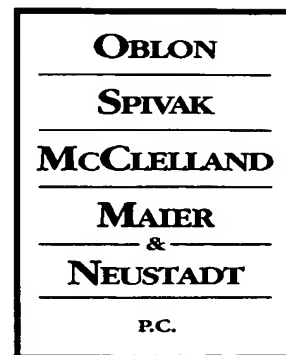




DATE RECORDED: December 21, 2004



ATTORNEYS AT LAW

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313

Docket No.: 239448US2S

RE: Application Serial No.: 10/601,538

Inventor: Masaharu WADA

Filing Date: June 24, 2003

For: DC-DC CONVERTER APPLIED TO SEMICONDUCTOR DEVICE

Group 2838

Examiner: Jeffrey L. STERRETT

SIR:

Attached hereto for filing are the following papers:

**LETTER SUBMITTING DRAWING REPLACEMENT SHEET  
REPLACEMENT DRAWING SHEET (1)**

Our check in the amount of \$0.00 is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,  
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Christopher D. Ward

Registration No. 41,367

Docket No.: 239448US2S



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION: Masaharu WADA

SERIAL NO.: 10/601,538

GAU: 2838

FILED: June 24, 2003

EXAMINER: Jeffrey L. STERRETT

FOR: DC-DC CONVERTER APPLIED TO SEMICONDUCTOR DEVICE

LETTER SUBMITTING REPLACEMENT DRAWING SHEET(S)

COMMISSIONER FOR PATENTS  
Alexandria, VA 22313

SIR:

Responsive to the below indicated communication, the following drawing sheets are submitted herewith:

☒ 1 Replacement Drawing Sheet ☐ \_\_\_\_\_ New Drawing Sheets

☐ Official Action dated \_\_\_\_\_

☒ Notice of Allowance/Issue Fee dated December 21, 2004

☐ Other dated \_\_\_\_\_

The changes and/or modifications made include the following:

The --Prior Art-- has been labeled into FIG. 28.

Respectfully Submitted,

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Docket No.: 239448US2S

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VIRGINIA 22313



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RE: Application Serial No.: 10/601,538  
Applicants: Masaharu WADA  
Filing Date: June 24, 2003  
Date Allowed: December 21, 2004  
For: DC-DC CONVERTER APPLIED TO  
SEMICONDUCTOR DEVICE  
Group Art Unit: 2838  
Examiner: STERRETT, J.

SIR:

Attached hereto for filing are the following papers:

**COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE**

Our check in the amount of **\$0.00** is attached covering any required fees. In the event any variance exists between the amount enclosed and the Patent Office charges for filing the above-noted documents, including any fees required under 37 C.F.R. 1.136 for any necessary Extension of Time to make the filing of the attached documents timely, please charge or credit the difference to our Deposit Account No. 15-0030. Further, if these papers are not considered timely filed, then a petition is hereby made under 37 C.F.R. 1.136 for the necessary extension of time. A duplicate copy of this sheet is enclosed.

Respectfully submitted,

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239448US2S

IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF: :  
Masaharu WADA : EXAMINER: STERRETT, J.  
SERIAL NO: 10/601,538 : DATE ALLOWED: December 21, 2004  
FILED: June 24, 2003 : GROUP ART UNIT: 2838  
FOR: DC-DC CONVERTER :  
APPLIED TO  
SEMICONDUCTOR DEVICE

COMMENTS ON STATEMENT OF REASONS FOR ALLOWANCE

COMMISSIONER FOR PATENTS  
ALEXANDRIA, VA 22313-1450

SIR:

The following comment is in response to the Statement of Reasons for Allowance provided in the Notice of Allowability dated December 21, 2004.

The Statement of Reasons For Allowance included on pages 2-3 of the Notice of Allowability states that the claims are allowable because the prior art singularly or collectively teach a DC-DC converter having various features explicitly mentioned on pages 2-3. However, the language used to describe the claims does not precisely match the actual claim language. For example, with respect to Claims 1-4, the Statement of Reasons for Allowance implies that Claims 1-4 recites “an oscillator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of the oscillator....” However, independent Claim 1 does

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Masaharu WADA

not recite that the comparator is an “oscillator synchronized” comparator. Additionally, Claim 1 recites that the comparison is made each cycle of the output signal of the oscillator. More precisely, Claim 1 recites, in pertinent part, a comparator which is supplied with the output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of the output signal of the oscillator. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 1-4, and thus the Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 1-4.

Furthermore, the Statement of Reasons for Allowance implies that Claims 5-8 recites “an oscillator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of the oscillator so as to control the pump circuit....” However, independent Claim 5 does not recite that the comparator is an “oscillator synchronized” comparator. Additionally, Claim 5 recites that the comparison is made each cycle of the output signal of the oscillator and controls the operation of timing generator. More precisely, Claim 5 recites, in pertinent part, a comparator which is supplied with output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of the output signal of the oscillator and controls the operation of the timing generator. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 5-8, and thus the

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Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 5-8.

Furthermore, the Statement of Reasons for Allowance implies that Claims 9-12 recites “an pulse generator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of the pulse generator so as to control the pump circuit via a second pulse generator....” However, independent Claim 9 does not recite that the comparator is a “pulse generator synchronized” comparator. Additionally, Claim 9 recites that the comparison is made each cycle of the first pulse signal and turns the first switch circuit off and the second switch circuit on when the output voltage of the voltage detecting circuit is higher than the reference voltage. More precisely, Claim 9 recites, in pertinent part, a comparator which is supplied with the output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of the first pulse signal and turns the first switch circuit off and the second switch circuit on when the output voltage of the voltage detecting circuit is higher than the reference voltage. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 9-12, and thus the Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 9-12.

Furthermore, the Statement of Reasons for Allowance implies that Claims 13-15 recites “an oscillator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of a

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Masaharu WADA

first or a second oscillation so as to control the pump circuit....” However, independent Claim 13 does not recite that the comparator is an “oscillator synchronized” comparator. Additionally, Claim 13 recites that the comparison is made each cycle of one of a first and a second pulse signal and turns the first oscillator off and the second oscillator on when the output voltage of the voltage detecting circuit is higher than the reference voltage. More precisely, Claim 13 recites, in pertinent part, a comparator which is supplied with the output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of one of the first and second pulse signals and turns the first oscillator off and the second oscillator on when the output voltage of the voltage detecting circuit is higher than the reference voltage. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 13-15, and thus the Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 13-15.

Furthermore, the Statement of Reasons for Allowance implies that Claims 16-18 recites “a pulse generator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of a first or a third generator so as to control the pump circuit....” However, independent Claim 16 does not recite that the comparator is a “pulse generator synchronized” comparator. Additionally, Claim 16 recites that the comparison is made each cycle of one of a first and a third pulse signal and turns the first pulse generator off and the second pulse generator on when the output voltage of the voltage detecting circuit is higher than the reference voltage.

More precisely, Claim 16 recites, in pertinent part, a comparator which is supplied with the output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of one of the first and third pulse signals and turns the first pulse generator off and the second pulse generator on when the output voltage of the voltage detecting circuit is higher than the reference voltage. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 16-18, and thus the Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 16-18.

Furthermore, the Statement of Reasons for Allowance implies that Claims 19-21 recites “a power switching transistor” and “an oscillator synchronized comparator” that “makes a comparison between a reference voltage and the output voltage of the output voltage detecting circuit each cycle of the oscillator so as to control the power switching transistor via a drive circuit....” However, independent Claim 19 does not recite that the transistor is a “power switching” transistor or that comparator is an “oscillator synchronized” comparator. Additionally, Claim 19 recites that the comparison is made each cycle of the output signal of the oscillator and controls the operation of drive circuit. More precisely, Claim 19 recites, in pertinent part, a transistor connected between a first power supply and an output terminal; and a comparator which is supplied with the output voltage of the voltage detecting circuit, and makes a comparison between the output voltage of the voltage detecting circuit and the reference voltage with each cycle of the output signal of the oscillator and

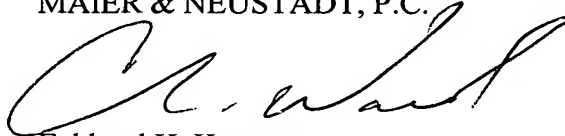


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controls the operation of the drive circuit. Accordingly, it is respectfully submitted that the Statement of Reasons for Allowance does not accurately reflect the subject matter recited in Claims 19-21, and thus the Applicant submits that the Statement of Reasons for Allowance is not applicable to Claims 19-21.

Respectfully Submitted,

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